

EXECUTIVE FUNCTIONS REHABILITATION PROPOSAL: A TAILORED INTERVENTION

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ABSTRACT

Executive functions (EFs) are cognitive processes that allow the development of intentional behaviors e requiring the ability to formulate goals and objectives, capacity for initiative, to anticipate the consequences of actions, to organize behavior and monitor it and adapt it based on the context. Patients with EFs deficiencies exhibit specific disorders of planning, regulation and correction intentional conduct and cognitive activity, while they have no problem in the execution of usual action sequences.

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Rehabilitation program for Executive Functions in developmental age

Executive functions (EFs) are cognitive processes that allow the development of intentional behaviors e requiring the ability to formulate goals and objectives, capacity for initiative, to anticipate the consequences of actions, to organize behavior and monitor it and adapt it based on the context. Patients with EFs deficiencies exhibit specific disorders of planning, regulation and correction intentional conduct and cognitive activity, while they have no problem in the execution of usual action sequences. There is a specific difficulty for voluntary behavior control; often they have difficulty making mental and behavioral changes and are self-conscious of the others limited.

EFs deficits are present in many pathologies, both of neurological origin and psychiatric, and often involve difficulties, even in the long term, school, work and reintegration social. Therefore, it is clear that the EFs rehabilitation is a crucial therapeutic goal. Even more recent is the attempt to prepare ad hoc interventions for this population, such as intervention programs that take into account the peculiarities and the nature of their competences⁽¹⁻¹⁵⁾.

In addition, most of the classic training was designed for adults and then modeled for them characteristics of children and adolescents. This way of proceeding confronts different problems nature. First of all, the intervention strategies designed for adults have rehabilitative purposes, that is, they aim at the restoration of a skill previ-

ously mastered in its mature form and subsequently partially lost totally. Children, otherwise, do not have a mature executive domain, so the risk could be that of going to act on one or more skills that have not emerged or are still undergoing maturation. Secondly, almost all of them are programs that have only the clinician and the

subject to which the intervention is intended and do not take into account as a resource the context in which the living subject, which should have a fundamental role in the perspective of generalization of results positives obtained.

The training that are most used can be differentiated into two types:

- intervention oriented to the person and his cognitive processes;
- interventions centered on the environment and its modification and structuring⁽¹⁵⁾.

A fundamental prerequisite to proceed with a rehabilitative intervention is to collect information about the executive functioning of the subject in question, information that is appropriate collect using different methods and sources. It is therefore important to integrate an evaluation behavioral with an indirect assessment of the subject that is obtained by administering to others significant questionnaires and interviews, and a direct evaluation that derives from the observation of the subject in multiple contexts of life and through the administration of tests that evaluate the executive functions. In this picture, it is possible to identify the problematic behaviors of the subject and identify the domain executive from whose compromise they could derive⁽¹⁵⁻²⁰⁾.

Once the problem areas have been identified, action priorities are defined in collaboration with the subject himself and the context of belonging; in particular, short, medium and long-term objectives are outlined long term.

Only after having laid these foundations can one proceed with the implementation of true rehabilitative intervention precisely, for which it is essential to consider three crucial elements:

- work on the environment through the insertion of supports and changes that can mitigate them difficulty and avoiding the development of the EFs,
- identifying the specific skills that should be taught to the subject and the procedures through training it,
- working on the motivation and the will of the subject in order to favor adherence to the work plan. effectiveness of the intervention; in order to

do this, the feasibility of the planned interventions is taken into consideration and a new assessment of the behaviors and of the domains is carried out, such as intervening with the intent of detecting changes in the proposed direction⁽²¹⁻²³⁾.

To date, there is no indication of efficacy and to the efficiency of the treatments for two reasons:

- there is no diagnostic category that unambiguously describes the characteristics of the EFs deficits;
- the number of protagonists, in the different studies, of these training is often greatly reduced (most of the work examines victims of injuries or adverse events that have led to the loss of one or more executive powers and when they have used individual cases)⁽²⁴⁻²⁷⁾.

Children-tailored interventions

Children-oriented interventions focus on the subject's ability to use their skills executives and go to act on it through two different ways:

- direct teaching of the modalities through which to develop or develop competences of which need;
- work on motivation to help the subject to use present, but not exploited, abilities.

In this way the efficiency of the individual executive components can be increased by using tasks specific and selective with the ultimate aim of ensuring greater ability to adapt to the environment surrounding

The interventions focused on negative behaviors in children with acquired frontal damage are a combination of techniques aimed at improving the skills of the problem solving and self-regulation both in the cognitive and in the behavioral field⁽²⁸⁻³²⁾.

Another approach in line with the cognitive-behavioral training is the multi-component one integrating strategies into a single action plan behavioral monitoring of the act and self-control with meta cognitive techniques. The results achieved show a significant increase in performance in the specific tests subject to intervention and in other untreated tasks used to evaluate the generalization and efficiency of treatment.

This approach is aimed to overcome the limits of the procedures described above: the mainly rehabilitative mold, the limited generalization skills and the lack of attention to the peculiar characteristics of the subjects in childhood.

These are innovative ways of intervention, which integrate the intervention on the person with

that on the environment, and the cognitive approach with the educational one. An integration of the two models of intervention, person and environment, born from the awareness that the child has the EFs in them rudimentary form, therefore an insufficient form to regulate and to guide its behavior towards the achievement of a purpose. In this regard, the role of adults, which they must provide for, becomes crucial child rules and patterns of behavior, which are first imitated and then internalized⁽³³⁻⁴⁰⁾.

The intervention child-tailored is characterized by the dual nature: cognitive and educational. The component cognitive aims to help the child understand how, in different circumstances, it could increase and make his cognitive and executive skills more productive; the second leads to work on the plane motivational and awareness of one's weaknesses, strengths and potentials.

Moreover, the fragment cognitive training is organized in six steps:

- 1) identification and definition of problematic behaviors;
- 2) definition of a goal;
- 3) definition of the steps and instruments through which the objective can be pursued;
- 4) provide the child with guidance and support;
- 5) evaluate the outcome of the intervention and make the necessary changes;
- 6) progressively loosen the supervision of the adult on the child⁽⁴¹⁻⁴³⁾.

This is a modality of proceeding that inevitably needs to be adapted to the individual needs. The first step therefore to be completed in the preparation of a training is the definition and description of what for the general functioning of the subject turns out to be problematic.

Generally, the behaviors that are problematic are: do not complete the activities in which they are engaged, do not follow the school routines, do not write down the tasks that must be performed, lose important material. We proceed with the definition of the specific problem behavior objectives, of the steps in which to divide the training and the degluments to be used to reach the pre-established improvement. It can be very useful for defining passages and proceeding with the intervention is the drafting of ad hoc checklist for the individual executive components and for different life contexts. The child is unlikely to implement autonomously and complete procedures, especially in the initial stages of the operation and it is here that the role of

the adult becomes crucial, to remind the child to start a procedure and to suggest completion of the procedure. of all the steps. It is also important that the adult observes the child's performance, thus having the tools to provide feedback and eventual rewards in case of appropriate behavior. When the child becomes an expert in the procedure and is able to apply it autonomously, the adult is called to loosen supervision and to make suggestions.

Separate, but parallel to cognitive training, it is the educational training that is also decomposed into six elements by the authors: the first two are superimposable to those of cognitive training (definition and description of problematic and objective behavior); they are followed by the definition of prizes and rewards, by the amelioration of the contract and by a conclusive moment of evaluation of the process. As regards the definition of the rewards system, it is important to examine the various aspects, such as the time-scansion with which the prizes are awarded, the type of prizes and the possible generalization of this system to the various contexts of life. Prizes may consist of material objects, such as games or food, or inactivity that is good that are provided in response to behaviors that the child has the opportunity to implement at home that in the school setting. With the stipulation of the contract you identify what the child is willing to do and those responsible for the roles of teachers and parents; it is in fact a very useful tool to encourage collaboration and motivation of the child who feels in the first person protagonist. All this ends with the evaluation of the effectiveness of the program and with any corrections made against it⁽⁴³⁻⁵⁶⁾.

The relevant elements are:

- 1) to promote the awareness of the subject about the EFs domains,
- 2) providing a model for an adequate use of the FE,
- 3) teaching specific FE, using example to the checklist on which the steps and the suggestions that can be used are noted
- 4) use internal feedback, then teach to use cognitive meta-strategies, reflecting on the procedures to be performed
- 5) establish a reward system for each goal achieved with success.

Compared to the classic training, the two intervention models described, foresee a direct involvement of the child, who is called to reflect on problematic behaviors and on the possible strategies to face them.

The adult instead becomes a model to imitate and figure of reference that predisposes the various steps of the intervention, supports throughout the duration of the subject, provides help, corrects any errors, supports the child to give the best of himself⁽⁴³⁻⁵⁶⁾.

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